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EXAMINER	
JONES, HUGH M	

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2128	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/754,951	QIAN ET AL.	
	Examiner	Art Unit	
	Hugh Jones	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/29/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-22 of U. S. Application 10/754,951, filed 1/9/2004, are pending.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 1-22 are rejected under 35 U.S.C. 101 because the claimed invention is drawn to non-statutory subject matter since the claims are drawn to an abstract algorithm or disembodied program steps and are not tangible and concrete.

4. The claims recite disembodied computer code or steps ("logic" which is non-functional descriptive material). The code requires a computer, which has not been claimed in order for the code to be operable. Thus, the steps appear to be disembodied program steps and are not statutory. The claims are not concrete and tangible.

- claims 1-12 recite an "article of manufacture": however, the article of manufacture appears to be disembodied computer program steps ("logic"). The "article of manufacture" is not tangible.
- claims 13-16 recite a "system": however, the system appears to be computer code since the "logic" appears to be disembodied computer program steps.
- Claims 17-22 recite a method: however, it appears to require a computer for operation. Thus, the steps appear to be disembodied computer program steps.

- It is noted that paragraph 26 (specification) recites the following (emphasis added):

> Common forms of computer-readable media include, for example, a floppy disk, a flexible disk, hard disk, magnetic tape, or any other magnetic medium, a CD-ROM, any other optical medium, punch cards, papertape, any other physical medium with patterns of holes, a RAM, a PROM, an EPROM, a FLASH-EPROM, any other memory chip or cartridge, *a **carrier wave/pulse**, or any other medium from which a computer, a processor or other electronic device can read*. ***Signals** used to propagate instructions or other software over a network, such as the Internet, **are also considered a "computer-readable medium."***

5. Thus, *computer readable medium* is non-statutory because signals, carrier waves and pulses are not tangible.

- It is also noted that the specification recites (paragraph 27):

> ""Logic", as used herein, includes but is not limited to hardware, ***firmware, software*** and/or combinations of each to perform a function(s) or an action(s), and/or to cause a function or action from another component. For example, based on a desired application or needs, logic may include a software controlled microprocessor, discrete logic such as an application specific integrated circuit (ASIC), a programmable/programmed logic device, memory device containing instructions, or the like. ***Logic may also be fully embodied as software.***"

6. Thus, "logic" is not statutory.

7. *The Examiner submits that the claims as written, are merely drawn to nonstatutory descriptive material since the claimed algorithm or disembodied program steps do not impart any functionality (let alone be stored on a tangible medium)). (i.e. not a computer program product or executable instructions embodied on a computer-readable medium). Analysis of the claim indicates that the claims are drawn to an abstract algorithm or disembodied computer program steps and are not tangible.*

8. *MPEP 2106 recites the following supporting rational for this reasoning:*

"Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when **employed as a computer component**. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data. **Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se.** Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is **recorded on some computer-readable medium** it becomes structurally and **functionally interrelated to the medium** and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized."

7. *In this case, applicants have merely claimed an abstract algorithm or disembodied program steps that are not embodied on a computer-readable medium and specifically employed as a computer component to be executed on a processor and perform the claimed limitations. Thus, Applicants have attempted to claim nonfunctional descriptive material.*

8. An invention which is eligible for patenting under 35 U.S.C. 101 is in the useful

arts when it is a machine, manufacture, process or composition of matter, which produces a concrete, tangible, and useful result. *The fundamental test for patent eligibility is thus to determine whether the claimed invention produces a* ***"useful, concrete and tangible result."*** The test for practical application as applied by the examiner involves the determination of the following factors:

(1) Useful - The Supreme Court in *Diamond v. Diehr* requires that the examiner look at the claimed invention as a whole and compare any asserted utility with the claimed invention to determine whether the asserted utility is accomplished. Applying utility case law the examiner will note that:

(a) the utility need not be expressly recited in the claims, rather it may be inferred.

(b) if the utility is not asserted in the written description, then it must be well established.

9. Furthermore, although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

(2) Tangible - Applying *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994), the examiner will determine whether there is simply a mathematical construct claimed, such as a disembodied data structure and method of making it. If so, the claim involves no more than a manipulation of an abstract idea and therefore, is nonstatutory under 35 U.S.C. 101. In *Warmerdam* the abstract idea of a data structure became capable of producing a useful result when it was fixed in a tangible medium

which enabled its functionality to be realized.

(3) Concrete - Another consideration is whether the invention produces a concrete result. Usually, this question arises when a result cannot be assured. An appropriate rejection under 35 U.S.C. 101 should be accompanied by a lack of enablement rejection, because the invention cannot operate as intended without undue experimentation.

10. A claim that requires one or more acts to be performed defines a process. However, not all processes are statutory under 35 U.S.C. 101. Schrader, 22 F.3d at 296, 30 USPQ2d at 1460. To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application in the technological arts is either disclosed in the specification or would have been known to a skilled artisan (discussed in i) below), or (B) be limited to a practical application within the technological arts (discussed in ii) below). See Diamond v. Diehr, 450 U.S. at 183-84, 209 USPQ at 6 (quoting Cochrane v. Deener, 94 U.S. 780, 787-88 (1877)) ("A [statutory] process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing.... The process requires that certain things should be done with certain substances, and in a certain order; but the tools to be used in doing this may be of secondary consequence."). See also Alappat, 33 F.3d at 1543, 31 USPQ2d at 1556-57 (quoting Diamond v. Diehr, 450 U.S. at 192, 209 USPQ at 10). See also id. at 1569, 31 USPQ2d at 1578-79 (Newman, J., concurring) ("unpatentability of the principle does not defeat patentability of its practical

applications") (citing O 'Reilly v. Morse, 56 U.S. (15 How.) at 114-19). If a physical transformation occurs outside the computer, a disclosure that permits a skilled artisan to practice the claimed invention, i.e., to put it to a practical use, is sufficient. On the other hand, it is necessary for the claimed invention taken as a whole to produce a practical application if there is only a transformation of signals or data inside a computer or if a process merely manipulates concepts or converts one set of numbers into another.

11. The claims merely recite an abstract algorithm or disembodied program steps. The claims are not concrete and tangible.

Claim Rejections - 35 USC § 112

12. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

13. Claims 1-22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

- there is no teaching of the simulation itself. The specification acknowledges that any simulation package can be used, but provides no teaching in the specification. However, the claims are directed at a simulation of networks. No such teaching has been incorporated.

14. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

15. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The specification recites (paragraph 27):

> ""Logic", as used herein, includes but is not limited to hardware, firmware, software and/or combinations of each to perform a function(s) or an action(s), and/or to cause a function or action from another component. For example, based on a desired application or needs, logic may include a software controlled microprocessor, discrete logic such as an application specific integrated circuit (ASIC), a programmable/programmed logic device, memory device containing instructions, or the like. Logic may also be fully embodied as software."

It is therefore impossible to unambiguously determine the meaning of claims using "logic".

16. Claims 7-8 recite the limitation "the algorithm". There is insufficient antecedent basis for this limitation in the claim. It is not clear if the algorithm finds antecedent basis the *simulation logic* or *simulation execution logic*.

17. Claims 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. Claims 7-8 recite either a Newton's method or a gradient search. The Examiner is well aware that both are used in optimization algorithms. However, it is unclear which algorithm is being referred to and further how

the algorithm is connected and used. It is noted that the algorithm is not being required to actually do anything.

18. Claims 20-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. These claims are omnibus type claims. It is impossible to determine the metes and bounds of the claim. Claim 20 recites "executing a simulation algorithm". The simulation algorithm is not specified. The function it is to carry out is also not specified. Claim 21 recites "optimizing an effect". It is not clear what constitutes the *effect*. The claim is broad enough that it could represent anything.

19. Claims 13-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The meaning of *adapted to* is ambiguous.

Claim Interpretation

20. The following is noted.

- The last paragraph of the specification recites (emphasis added):

"While the present invention has been illustrated by the description of embodiments thereof, and while the embodiments have been described in considerable detail, *it is not the intention of the applicants to restrict or in any way limit the scope of the appended claims* to such detail. …."

This is not agreed to. The scope of the claims is defined by the claim language.

21. Claims 1-12 recite an "article of manufacture": however, the article of manufacture appears to be disembodied computer program steps ("logic").

22. Claims 13-16 recite a "system": however, the system appears to be computer code since the "logic" appears to be disembodied computer program steps.

23. Claims 7-8, 20-21 are not examined with respect to prior art. The claims are so indefinite and incomplete that no art rejection is warrented as substantial guesswork would be involved in determining the scope and content of these claims. See In re Steele, 305 F.2d 859, 134 USPQ 292 (CCPA 1962); Ex parte Brummer, 12 USPQ 2d, page 1654; and also In re Wilson, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970). Prior art pertinent to the disclosed invention is nevertheless cited and Applicants are reminded that they must consider all cited art under Rule 111(c) when amending the claims to conform with 35 U.S.C. 112.

24. Claims 7-8 recite either a Newton's method or a gradient search. The Examiner is well aware that both are used in optimization algorithms. However, it is unclear which algorithm is being referred to and further how the algorithm is connected and used.

25. It is noted that paragraph 26 (specification) recites the following (emphasis added):

> Common forms of computer-readable media include, for example, a floppy disk, a flexible disk, hard disk, magnetic tape, or any other magnetic medium, a CD-ROM, any other optical medium, punch cards, papertape, any other physical medium with patterns of holes, a RAM, a PROM, an EPROM, a FLASH-EPROM, any other memory chip or cartridge, ***a carrier wave/pulse,*** *or any other medium from*

which a computer, a processor or other electronic device can read. ***Signals*** *used to propagate instructions or other software over a network, such as the Internet,* ***are also considered a "computer-readable medium."***

26. Thus, *computer readable medium* is non-statutory because signals, carrier waves and pulses are not tangible.

27. Recitations following phrases such as "for use" and "for causing" are provided no patentable weight. Said features must be positively claimed.

28. The specification also recites (paragraph 27):

> ""Logic", as used herein, includes but is not limited to hardware, firmware, software and/or combinations of each to perform a function(s) or an action(s), and/or to cause a function or action from another component. For example, based on a desired application or needs, logic may include a software controlled microprocessor, discrete logic such as an application specific integrated circuit (ASIC), a programmable/programmed logic device, memory device containing instructions, or the like. Logic may also be fully embodied as software."

29. It is impossible for logic to be hardware. Logic is a relationship among ideas. In any case, logic" is non-statutory.

30. Management logic is inherent in network management.

31. There is no teaching of the simulation itself. The specification acknowledges that any simulation package can be used, but provides no teaching in the specification. No

such teaching has been incorporated. It appears that Applicants are attempting to claim the use of well-known software packages. At the same time, Applicants have provided no such disclosures in an Information Disclosure Statement.

Claim Rejections - 35 USC § 103

32. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

33. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

34. Claims 1-6, 9-19, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berg in view of Ephremides et al..

35. Berg discloses taking the output of a network simulator and applying it directly to a network (fig. 5 and col. 9, lines 32-45), but supplies few details of the simulator.

36. Ephremides provides said details (as mapped subsequently).

37. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Berg disclosure with the Ephremides teaching because Berg

expressly teaches use of a network simulator to control the network (fig. 5 and col. 9, lines 32-45).

38. Claims 1-6, 9-19, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ephremides et al. in view of Almeida et al..

39. Ephremides discloses a network simulator (as mapped subsequently).

40. Ephremides does not expressly teach using the output of the simulator to control the network.

41. Almeida provides said details (fig. 4, col. 8, lines 5-19).

42. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Ephremides disclosure with the Almeida teaching for the advantages disclosed by Almeida (Col. 2, lines 35-50).

43. Specifically, Ephremides discloses:

> 1. An article of manufacture embodied in a computer-readable medium for use (intended use) in a processing system for (intended use) modeling configurations of a wireless local area network (abstract; fig. 1; line 35, col. 2 to line 22, col. 1), the article comprising: a configuration receiving logic for causing (intended use) the processing system to determine a set of original configurations of the wireless local area network (fig. 1 # 102; fig. 3 "initial"); a simulation logic for causing (intended use) the processing system to simulate an outcome based upon the set of original configurations in accordance with a goal (intended use; fig. 1 # 104, 106, 108, 110); a configuration creation

logic for causing (intended use) the processing system to create a set of new configurations based upon the outcome (fig. 1 # 104, 106, 108, 110); and a management logic for causing (intended use) the processing system to apply the set of new configurations to the wireless local area network (fig. 1 # 104, 106, 108, 110 - # 112 - the results are applied to reconfigure the system).

2. The article set forth in claim 1 wherein the simulation logic is a discrete event simulation logic (fig. 1).

3. The article set forth in claim 1 further comprising an analysis logic for causing (intended use) the processing system to determine if the outcome satisfies the goal (fig. 1 # 104, 106, 108, 110).

4. The article set forth in claim 1 wherein the goal is a user defined goal (intended use).

5. The article set forth in claim 1 wherein the goal is a historical-based goal (intended use).

6. The article set forth in claim 1 wherein the simulation logic includes a simulation execution logic for causing (intended use) the processing system to simulate a wireless local area network based upon the set of new configurations (fig. 1 # 104, 106, 108, 110).

9. The article set forth in claim 1 wherein the simulation logic includes optimization logic for causing (intended use) the processing

system to optimize the set of new configurations based upon the goal (fig. 1 # 104, 106, 108, 110).

10. The article set forth in claim 1 wherein the simulation logic includes prediction logic for causing (intended use) the processing system to predict an effect on the wireless local area network based upon the set of new configurations (fig. 1 # 104, 106, 108, 110).

11. The article set forth in claim 10 wherein the effect is one of total throughput, noise mitigation, access point loading and voice/data distribution (fig. 1 # 104, 106).

12. The article set forth in claim 1 further including a display logic for causing (intended use) the processing system to display a graphical representation of the outcome (fig. 3-7).

13. A system for simulating and managing a wireless local area network (abstract; fig. 1; line 35, col. 2 to line 22, col. 1), the system comprising: a simulator logic adapted to process a goal to generate a set of network configurations (fig. 1 # 104, 106, 108, 110); a management logic adapted to process the set of network configurations (fig. 1 # 104, 106, 108, 110, # 112, the results of the simulation are used to reconfigure the system); and an interface module adapted to transfer the set of network configurations to the management logic (fig. 1 # 104, 106, 108, 110).

14. The system set forth in claim 13 wherein the simulator logic

further includes a discrete event simulator logic adapted to process the goal to generate the set of network configurations (fig. 1 # 104, 106, 108, 110).

15. The system set forth in claim 13 further comprising a configuration logic adapted to establish the set of network configurations from the goal (fig. 1 # 104, 106, 108, 110).

16. The system set forth in claim 13 further including a computer-readable medium adapted to maintain the set of network configurations (fig. 1, 8).

17. A method for adjusting a configuration of a wireless local area network (abstract; fig. 1; line 35, col. 2 to line 22, col. 1), the method comprising the steps of: establishing a goal to represent a desired criteria (intended use); generating a set of goal configurations (fig. 1 # 104, 106, 108, 110); simulating a wireless local area network via a discrete event simulation based upon the set of goal configurations (fig. 1); establishing a set of outcome configurations based upon the simulation (fig. 1 # 104, 106, 108, 110); and applying the set of outcome configurations to the wireless local area network (fig. 1 # 104, 106, 108, 110, # 102, the results are used to reconfigure the system).

18. The method set forth in claim 17 wherein the goal is a user defined goal (intended use).

19. The method set forth in claim 17 wherein the goal is based upon a historical-based goal (intended use).

22. The method set forth in claim 17 further comprising the step of displaying an effect on the wireless local area network based upon the set of goal configurations (fig. 3-7).

44. Any inquiry concerning this communication or earlier communications from the examiner should be:

directed to: Dr. Hugh Jones telephone number (571) 272-3781,

Monday-Thursday 0830 to 0700 ET,

or

the examiner's supervisor, Kamini Shah, telephone number (571) 272-2279.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, telephone number (703) 305-3900.

mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 308-9051 (for formal communications intended for entry)

or (703) 308-1396 (for informal or draft communications, please label *PROPOSED* or *DRAFT*).

Dr. Hugh Jones

Primary Patent Examiner

July 8, 2006

HUGH JONES Ph.D.
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